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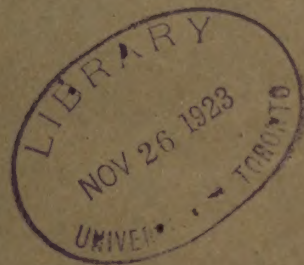
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A TYPE OF ATHABASKAN RELATIVE

AND

THE PHONETICS OF HAIDA



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A TYPE OF ATHABASKAN RELATIVE

By E. SAPIR

As is well known by students of Athabaskan linguistics, the Athabaskan adjective is in form a verb. Even the simplest, non-pronominal or third-personal, form regularly contains either a "first modal" prefix¹ (generally *dě-*, *d*; *ně-*, *n-*; *t'ě-*, *t'-*; or *tě-*, *t-*), a "second modal" prefix (*sě-*, *s-*), a "third modal" prefix (generally *-l-* or *-t-*), or a first (or second) modal prefix followed by a third modal prefix (forms in *dě-l-*, *ně-l-*, *ně-t-* are typical). It is unnecessary to give examples here, as they may be readily supplied from the special dialectic monographs (see, e.g., Goddard, Legoff, Morrice, Petitot).

Father Legoff, however, in his *Grammaire de la Langue Montagnaise*³, calls attention to an interesting class of adjectival derivatives ("nouns formed from adjectives") in which the prefixed elements are lost and the bare stem appears in the relative⁴ form. Some of his examples are:

1. I follow Dr. Goddard's convenient terminology, without thereby committing myself in the least as to the term "modal".

2. I use *ě* as a formula for the reduced or "pepet" vowel which has different forms according to dialect or according to varying phonetic circumstances in one dialect (e.g. *ɪ*, less frequently *α*, *ε*, *a*, or *u*, in Hupa; *α* in Kato and Chasta Costa; *ε*, *α* in Chipewyan). It may often be shown to be a reduced form of an older Athabaskan *ε* or *i*.

3. Montreal, 1889. See p. 30. Petitot and Legoff use "Montagnais" in the sense of Chipewyan.

4. By "relative" I mean the form assumed by nouns when they are qualified by preceding elements (nominal or pronominal) and by verbs when they are used as relative clauses. The fundamental Athabaskan relative suffix is probably *-e*, *-ě* (*-ye*, *-yě*), but the actual dialectic forms are often involved by the operation of various

dε-l-ba (TO BE) GRAY : *bay-ε* THE GRAY ONE⁵
dε-l-gai (TO BE) WHITE : *gay-ε* THE WHITE ONE
nε(d)-du-ε (TO BE) SHORT : *du-ε* THE SHORT ONE
dε-yεl (TO BE) SQUAT : *yεl-ε* THE SQUAT ONE
dε-bađ (TO BE) ROUND : *bađ* THE ROUND ONE
dε-l-zen (TO BE) BLACK : *zen* THE BLACK ONE
dε-yo' (TO BE) SHAGGY : *yo'* THE SHAGGY ONE
dε-l-θo' (TO BE) YELLOW : *θo'* THE YELLOW ONE.

Such forms as *bađ*, *zen*, *yo'*, and *θo'* look for all the world like unmodified stems, but there is every reason to believe that they are relative forms, like *gay-ε* and *yεl-ε*, that have either fallen together with or that differ in some respect from the parallel stem forms found in the adjective-verbs. Possibly the phonetic record is defective⁶.

Legoff says of these forms: "This kind of

phonetic laws. Frequently the *e*, *ě* is dropped but is then apt to leave a trace in the voicing of the preceding consonant, now final (e.g. the relative form of Hupa *-t'a'* AMONG < Ath. **-t'ax* is *-t'au* < *-t'aw*, the regular Hupa development of Ath. **-t'ay*, reduced from **-t'ay-ě*).

5. I write *bay-ε* rather than *ba-yε*, though Legoff speaks of a suffixed *-yε*, because comparative evidence demonstrates the existence of the stem-form *-bay-* as well as *-ba'*. *-ba'-i* and Petitot's *Montagnais -ba-a* seem to presuppose Ath. **-mab-ě*. Navaho *-bai*, e.g. *gim t-bai* GRAY HAWK, is Ath. **-may-ě*; cf. further Hupa *-mai*, Kato *-bai*. I am modifying Legoff's and Petitot's orthography and that of the Franciscan Fathers so as to bring them into harmony with current Americanist usage.

6. Goddard writes *dε-l-zen* TO BE BLACK, but *naγiđe-zen'* BLACK FOX (*Texts and Analysis of Cold Lake Dialect, Chipewyan*, AFAMNH, X, 110). Does this mean that *-zen'* is the relative form of *-zen*? The relative form of the corresponding Navaho *-jin* BLACK is *-ji'n*, with lengthened vowel. The formation of the relative in Athabaskan has never been properly studied. It is one of the fundamental problems of the language.

substantive is hardly used except as sobriquets which men give one another or as names which people give to animals, in order to distinguish them. And then they are always followed by the word *yaxε*, which means "little". As a matter of fact, the type is illustrated in other connections, e. g. :

dε-k'εδ TO BE BALD : *tθi-k'εδε* THE BALD-HEADED ONE, BALD-HEADED (Pet.)

(*h*)*o-rε-zur*⁷ TO BE SLIPPERY (Pet.) : *t'an'-zurε* SLIPPERY ICE (Leg.)

These two examples differ in an important respect. In *t'an'-zurε* and numerous other compounds of its type the first member (ICE) designates the properly denominating concept of the group, which is then qualified by a relative form (*zur-ε*) of Legoff's "sobriquet" type. In *tθi-k'εδε* the first member of the compound (HEAD) is not the properly denominating concept of the whole, though it is itself qualified by a relative form (*k'εδ-ε*), again of the sobriquet type. The group *tθi-k'εδε*, taken as a unit, is to be understood as qualifying a third, understood, noun. We can express this by saying that while SLIPPERY is relative to ICE and ICE not relative to another concept, BALD is relative to HEAD and BALD-HEAD to PERSON. As far as such a form as *tθi-k'εδε* is concerned, it makes no difference whether the qualified noun is expressed or not. Obviously the difference between *t'an'-zurε* and *tθi-k'εδε* is analogous to the English difference between RED BREAST and (ROBIN) REDBREAST. Whether there is a prosodic difference (one of stress or pitch) between the two Athabaskan types does not appear from the evidence, but it is possible that they are not formally identical.

As there is no genuine line of demarcation in Athabaskan between "adjective" and "verb", one may expect that forms both of

the type *bayε* THE GRAY ONE and *t'an'-zurε* SLIPPERY ICE may be based on "verb stems". This is exactly what we find. A few examples are :

Mont. *-γi* TO MELT ; *dε-l-γi* TO BE MELTED (Pet.) : *dlεs γin-ε* GREASE EASY TO MELT, MELTABLE GREASE (Leg.)

Mont. *-ts'aγ* TO CRY : *ts'aγ-ε* THE WHIMPERING ONE, GRUMBLER (Pet.)

Hare *-k'wε* TO LIE HABITUALLY : *k'wε-ε* LIAR (Pet.)

It scarcely needs to be pointed out that Legoff's "sobriquets" are simply qualifying terms in the relative form, the noun referred to being unexpressed. It is not a far cry from compounds like *tθi-k'εδε* THE BALD-HEADED ONE and *dlεs γin-ε* MELTABLE GREASE to such clipped forms, say, as *k'εδε* THE BALD ONE and *γinε* WHAT MELTS (EASILY). Such forms are in type identical with Legoff's *bayε* THE GRAY ONE. Of *ts'aγε* GRUMBLER, Petitot remarks that it is derived from *ts'aγ* TEARS ; we would then have to interpret *ts'aγε* as THE ONE WITH TEARS rather than as THE WHIMPERING ONE. Petitot's analysis is perfectly credible, for forms of the type of *bayε* may be directly formed from noun stems, as I shall show from Navaho evidence. But I hope also to show that the difference between *-ts'aγ* TO CRY and *ts'aγ* TEARS is purely a matter of translation, not of intrinsic Athabaskan form.

In Navaho there are a great many prefixless or radical qualifying terms in relative form. They are freely used with or without preceding nouns and are based on "adjectival", "nominal", or "verbal" stems. They all denote permanent or characteristic attributes and easily take on the character of sobriquets or regular clan or personal names. Examples of "adjectival" origin are⁸ :

7. Petitot writes *o-* for *ho-* (see Goddard and Legon). *-r-* is a postvocalic form of *d-* in Chipewyan.

8. My Navaho examples are taken from the *Vocabulary of the Navaho Language* of the Franciscan Fathers (2 vols., St. Michaels, Arizona, 1912).

n-jun-i NICE (relative form); *n-jo'* TO BE GOOD :
jun-i NICE

n-ne'z TO BE LONG : *nes*, *ne'z-i* LONG

n-t'el TO BE WIDE : *t'el* WIDE

h-ts'o TO BE YELLOW : *te ts'o'-i* YELLOW EARTH
(place name)

ti-jin TO BE BLACK : *hwo' ji'n-i* TOOTH-BLACK,
DECAYED TOOTH; *ya' ji'n* BLACK LOUSE

a-t'is'p's-i TO BE SLIM (also *-l'sps*, *-l'sos-i*,
-l'so's) : *ts'i' t'so's-i* HEAD-SLIM, THE SLIM-
HAired ONE (man's name)

hwo' c-gi'j-i TOOTH WHICH-IS-MISSING (*c*-assimilated from *s*-, "second modal" prefix): *hwo' gi'j-i* MISSING TOOTH; *bo-hwo' gi'j* HIS-TOOTH MISSING

di-tc'oc-i STUBBY (relative form) : *ts'i' tc'o'c-i*
HEAD-STUBBY, THE STUBBY-HAired ONE (man's name)

a-gud-i SHORT; Montagnard *i-gor-e* (Pet.) : *ga gu'd-i* ARM-SHORT, ARMLESS; *k'e gud-i* SHORT-FOOTED

la-gai TO BE WHITE : *ga' ts'o gai'* RABBIT-LARGE-WHITE, WHITE JACK-RABBIT

Examples of "verbal" origin are :

-t'to, *-t'tp'*, *-t'tot* TO WEAVE : *t'tog-i* ' GRASS-WEAVERS, SIA INDIANS

-ye'd, *hwud*, *-hwut* TO RUN : *t'o' hwut* RAPID WATER (place name)

This type is doubtless actually well represented in Navaho, but the material is scanty or not easily accessible. To it belongs probably *Tucson* (Arizona place-name), said to mean BAD-SMELLING WATER; the Navaho (or Apache) form is probably something like *t'o tc'a* (cf. Nav. *-tc'in*, *-tc'a*, *tc'it* TO SMELL).

Examples in which the related word is a noun are quite numerous. The reference is not to the concrete content of the noun as such but to a person or object, expressed or implied, that is conceived as the possessor of or as in

some way related to the thing defined by the noun. Examples are :

k'ai WILLOW : *k'a'-i* THOSE WHO HAVE (OR ARE CONNECTED WITH) WILLOWS, WILLOW CLAN

yo' BEAD : *yo-o* THOSE WHO HAVE BEADS, BEAD CLAN

t'ca' HAT : *t'cab-i* HE WITH THE HAT (man's name)

gic CANE : *gic-i* HE WITH THE CANE (man's name)

ca'c KNOT : *ca'j-i* KNOTTY

xε't BURDEN, *bi-yε'l* HIS BURDEN : *yε'l-i* THE ONE WITH A BURDEN, HE WHO IS SLIGHTLY HUNCH-BACKED (man's nick-name)

t'coc WORM : *hwo' t'coc-i* TOOTH-WORMY, A HOLLOW TOOTH

yεi SUPERNATURAL BEING : *t'o yε'* WATER THAT HAS SUPERNATURAL BEINGS, DANGEROUS WATER (place name)

t'o WATER : *na' t'o'-ho* ENEMY THAT IS CONNECTED WITH WATER (?), ENEMIES AT THE WATER, ISLETA INDIANS

cac BEAR : *na' ca'c-i* ENEMY THAT IS BEAR, BEAR ENEMIES, HANO INDIANS

Relative forms like *t'cab-i* bear an obvious formal similarity to such English derivatives in *-ed* and *-y* as *bearded* and *knotty*. But the resemblance is more apparent than real. The relative form of the noun is not a true "adjectival" derivative of the noun, as is shown by the fact that morphologically parallel forms are built on stems conventionally set down as "adjectival" or "verbal". The genetic relation between these Athabaskan relative forms and the possessed form of the noun (e. g. Montagnais *t'sab-e* HIS CAP [Leg.], *se-t'sa-a* MY CAP [Pet.]; Hupa *hWin* SONG : *xo-hWin-[n]ε* HER SONG; Chasta Costa *c-mxn-e* MY HOUSE) on the one hand and the subordinated form of the verb (e. g. Mont. *zε-yε* ONE GROWS UP : *zε-yε-hε* GROWTH, *nε-γ-i-l-dyεt* WE ARE AFRAID : *nε-γ-i-l-dyεd-i* WE WHO ARE AFRAID [Leg.]; Hupa *-lal* TO FLOAT CONTINUOUSLY : *na-na-t-lal-ε* IT FLOATING; Nav. *di-c-hwuc* I YELL : *di-la-hwuc-i*

9. Or directly to *t'to'* grass?

ONE WHO YELLS MUCH, HOWLER) on the other is obvious. In Navaho the relative form with final vowel (generally *-i*; old *-ë* assimilated to *-o* after radical *o*) is probably no longer felt as identical with the possessed nominal form with final consonant (cf. *bi-yε'l* HIS BURDEN with *yε'l-i* above), but the general consensus of Athabaskan evidence makes it highly probable that such alternations as *-yε'l* and *yε'l-i* go back to Athabaskan alternations of type **γε·l-ë*: **γε·l-ë*. In other words, even in Navaho the possessed forms of the nouns are simply reduced relatives (perfectly analogous to *xε't*: *-yε'l* is *dχit* MOUNTAIN: *yo-t-gai'* *dχi'l* SHELL-WHITE MOUNTAIN). We have already seen that there are analogous doublets in Navaho for the relative forms of "adjectival" stems (cf. *gi'j-i* and *gi'j* MISSING, *jin-t* and *jin* BLACK above).

It is not the purpose of this paper to discuss the functions and the fundamental significance of the Athabaskan relative. I hope to show in a future paper that it is a feature that goes back, both in general form and as an actual phonetic element, to the Nadene period and that it consists in essence of an old particle, probably a demonstrative stem, that could be freely added to any word or group of words to relate it to an expressed or understood person or thing. The primary function of the Athabaskan (and Nadene) relative is thus an exceedingly wide one, of which the particular usages listed in our grammars are but specific applications or rather English (or French) translations. The lengthening of the stem vowel and the voicing of a final voiceless spirant¹⁰ are merely secondary phonetic phenomena due to the presence of

10. In part no doubt retention of originally final voiced spirant. I believe it to be probable that in such Athabaskan alternations as **t'lot* STRAP: **t'lo·l-e*, **t'lo·l-ë* STRAP OF (ONE) it is the *-l-* which represents the old consonant, preserved because of the following relative element, and that the *-t* of the absolute form is due to a secondary unvoicing of the old *-l*.

the relative element. As this element became reduced to zero, these secondary phenomena tended to take over the properly relative function.

Just as we have the alternation of final *-t*: *-l-*, of *-x* (*-'*): *-γ-*, of *-x* (*-'*): *-γ-*, of *-c*: *-j-*, and of *-s*: *-χ-*, so also these alternations occur initially¹¹; e. g. Mont. *tuε* FISH: *sε-lluε* MY FISH (Pet.), Hare *xε'* BURDEN: *sε-γε·l-ε* MY BURDEN, Hupa *tit* SMOKE: *m:[l]-li[t]d-ε* HIS SMOKE, Nav. *sin* SONG: *bi-yi'n* HIS SONG (in Athabaskan terms **xën*: **-yën-ë*; cf. Mont. *cεn*: *-yεn-ε*, Hare *ci*: *-yin-ε*). Here too the alternation could only have been due to phonetic circumstances to begin with. If a word was closely connected, in thought and in position, with a preceding word or element, the voiced spirant (say *l*) was retained or the voiceless spirant was voiced. Athabaskan **xel* BURDEN: **cë-γel-ë* MY BURDEN thus originally meant no more than that two radical elements (**cë* ME and **xel* BURDEN) were united into a phrase with the help of a following denominating element **-e*, **-ë*: ME-BURDEN THE, i.e. MY BURDEN. The **-ë* preserved the *-l* of **xel*, ordinarily **xel*, while the voiceless *x* passed to *-γ-* in intervocalic position¹². It is very doubtful if there was any specific function connected with the *x-*: *-γ-* interchange. In time, however, there

11. In final position note also *-ŋ* (or nasalization): *-n-*.

12. Possibly an old *γ-* was here preserved, but passed to unvoiced *x-* when not protected by an immediately preceding vowel. The alternations listed in the text naturally apply to primary Athabaskan. In certain dialects some of these alternations ceased to operate freely because phonetic laws divorced the consonants that had originally belonged together. Thus, in Hupa the old Athabaskan interchange of *x-*: *-γ-* (preserved in Chipe-wyan, Hare, and Navaho) had ceased to be a live process because of the falling together of Athabaskan *x* and *k'* into Hupa *x* and the change of Athabaskan *γ* to Hupa *w*; the corresponding final alternation of *-x*: *-γ* lingered on as *-s'*: *-w*, *-u*. Note also that in Pacific Athabaskan voiced sibilant spirants have been leveled with voiceless sibilant spirants.

can be no doubt that the voicing of initial spirants came to be felt as intrinsically, not merely mechanically, connected with the relative function. Hence such detached forms as * $\gamma\epsilon l\text{-}\check{e}$ THE ONE WITH A BURDEN (Nav. $\gamma\epsilon l\text{-}i^{13}$), * $j\text{un-}\check{e}$ THE GOOD ONE (Nav. $j\text{un-}i$), * $j\check{e}n\text{-}\check{e}$ THE BLACK ONE (Mont. $\zeta\epsilon nn$). It is probably because of the intrinsically "relative" significance of "adjective" stems that these regularly begin with a voiced spirant if the initial consonant is a spirant.

Such forms as Hare $k^w\epsilon\text{-}\epsilon$ LIAR and Navaho $t'\epsilon'l$ WIDE bring home to us the highly important fact that the actual "radical elements" of Athabaskan verb and adjective forms are more freely isolated than one might at first believe to be possible. A careful study of all the available material would tend to show that these radical elements have a considerable mobility, that they are not far removed from the status of independent monosyllabic "words", and that the complex "word" of our Athabaskan texts and paradigms feels a great deal more like a closely knit phrase or sentence than has yet been suspected or, at any rate, explicitly demonstrated. I hope to show in due time what is the true nature of the various "prefixes" and "suffixes" that render the morphology of the Athabaskan verb so complex in appearance. It will appear that each and every one of these elements is a relatively self-contained unit in the sentence, either a determinative or an actually predicating element. Much of the "vagueness" of meaning or function that we feel to attach to many of these elements is simply an index of our inability to carry over the Athabaskan manner of expres-

13. Athabaskan γ is preserved in Navaho only before a . It appears as y before i and ϵ , labialized to w before o . The alternation $x : y$, however, leads one to suspect that this "y" is not phonetically identical with the y that corresponds to common Athabaskan y .

sion into precisely equivalent English (or French) form¹⁴.

For the present I shall content myself with a few random examples suggesting the mobility and essential concreteness¹⁵ of the verb stem. The Hupa verb stem for "to flow" is $-\epsilon n$, $-l\eta$, which has numerous cognates in other dialects. Forms like $t'\epsilon w\epsilon sl\eta t'\epsilon$ IT WILL FLOW OUT and $n\epsilon'ill\epsilon n$ IT ALWAYS FLOWS do not seem to suggest the possibility of combining the bare stem freely with other concrete elements. I have found no examples in Hupa of $-\epsilon n$ or $-l\eta$ so used, though they may of course exist. But this stem (Athabaskan * $-\text{lin}$, * $-\text{l}\eta$) is clearly related to Athabaskan * $-\text{li}$ (e.g. Mont. $\gamma a\text{-}i\text{-}d\text{-}li$, Hare $\gamma\epsilon\text{-}d\text{-}li$ COULER A TERRE [Pet.]), probably also to Athabaskan * $-\text{lej}$ (TEARS) FLOW (e.g. Mont. $d\epsilon\text{-}l\text{-}l\epsilon\zeta$, Hare $d\epsilon\text{-}l\text{-}l\epsilon'$ [Pet.]). Athabaskan * $-\text{li}$ appears in Hupa as $-\text{l}\epsilon$ (reduced to $-l$); it is found, without formal prefixes of any kind, in certain compounds: $no\text{-}l\epsilon$ DAM, WATERFALL (lit. DOWN-FLOW OR HALT-FLOW), $t\epsilon\text{-}l\text{-}d\text{-}\eta$ TOGETHER-FLOW-PLACE (village name). Similarly, $-\text{xa}(u)W$, an "indefinite" form of $-\text{xa}$ LIQUID HAS POSITION, is directly compounded

14. Very much as one who tries to see in a French locution like *Qu'est-ce qu'il a ?* an exact equivalent of our English *What has he ?* would find it difficult to get the proper form-feeling of the elements *est*, *ce* and *qu'*.

15. In a large number of Athabaskan verb forms it is impossible to assign to the radical element (that is, the "verb stem" proper) the kind of concreteness that would in our eyes yield the actual concrete significance of the form. It does not follow that the stem has not a definitely concrete significance of its own, clearly apprehended by the native form-feeling. All that we have a right to say is that the summing of significances inherent in the theoretically independent elements of the complex does not seem naturally to lead to the precise idea that we express in such and such a way. The true difficulty from our naive standpoint is in such cases not that the stem is a « vague » element but that it seems inapplicable, just as to one unacquainted with English idiom the notion of "fall" in such a sentence as *The friends had a falling out* is inapplicable. A matter of fact, I believe that there are few languages in America that feel their "stems", and elements generally, as definitely and as concretely as Athabaskan, Tlingit, and Haida.

with *sa* MOUTH : *sa-xa(u)W* LIQUID WHICH HAS BEEN PUT IN THE MOUTH, ACORN SOUP. In Navaho, again, the verb stem *-na* TO LIVE (e. g. *xi-n-c-na* I LIVE) may be used as an unmodified element in a compound : *k'a'-na'-ni* ARROW-LIVE-PEOPLE, LIVING-ARROW PEOPLE (clan name). Such examples could be multiplied considerably.

If the monosyllabic "verb stem" may thus be isolated in practice as a more or less freely movable element, capable of conveying a definite notion in its own right, we cannot but conclude that the purely formal difference between verb (and adjective) stem and noun stem becomes a tenuous one. What is to prevent us from interpreting the *-lε* of Hupa *no-lε* as a noun meaning FLOWING or CURRENT, *no-lε* and *lε-l-dvη* meaning properly DOWN-FLOWING (not a secondarily nominalized form of an inherently verbal TO DOWN-FLOW) and RECIPROCAL-CURRENT-LOCALITY? Might not the Navaho *k'a'-na'-ni* be just as well interpreted ARROW-LIFE-PEOPLE? As a matter of fact, I cannot see that anything seriously stands in the way of such an explanation, and its adoption would at once make clearer a number of morphological peculiarities. Among such peculiarities are : 1. the ease with which a great many evident nouns are transformed into "verb stems" (e. g. Hupa *k'a* DRESS : *-k'a* TO WEAR A DRESS ; Kato *djvη* DAY : *-djvη* TO BE DAY) ; 2. the frequency with which "verb stems" with a clearly defined verbal force, if we may trust all appearances, take on, when isolated, an abstract or concrete nominal significance (e. g. Athabaskan **-yan* TO PASS THROUGH LIFE : **xan* OLD AGE, MATURITY ; **-dlo'* TO LAUGH : **dlo'* LAUGHTER ; **-lo* TO SNARE, TO BE CAUGHT IN A NOOSE : Nav. *to¹⁶* SNARE, LOOP) ; 3. the fact that a number of verb stems refer not to specific activity but to a class of objects

16. Voiceless spirants initially, voiced spirants in postvocalic, or originally postvocalic, position, according to the typical Athabaskan rule.

(e. g. **-ʼan* TO HANDLE A ROUND OBJECT ; **-k'os* TO HANDLE A CLOTH-LIKE OBJECT). I hope later to take up this fundamental question and to show that in a verb form it is not the "verb stem" that is the distinctively verbal element but, where found, the "third modal" element ; that all "verb stems" are in fact nouns not only in theoretical origin but in actual usage ; and that verbs translated according to the forms TO DIE, TO BE SEEN, and TO KILL fall into patterns more accurately rendered by DEATH IS, SIGHT TAKES PLACE, and TO MAKE SLAUGHTER. If this interpretation is correct, an element like *-ʼan* is not properly a "verb stem" indicating some kind of activity or state with reference to a single round object but is actually a noun which means, or originally meant, A ROUND OBJECT. The three classes of verbal usage listed above would fall into a single category applicable to all other verb forms as well. Indeed, it will appear that this theory of the essentially nominal character of all "adjective" and "verb" stems simplifies enormously the whole aspect of Athabaskan (and Tlingit) morphology.

Meanwhile, whether or not we are willing to go so far in the present stage of our knowledge as to accept the nominal theory of verb radicals, it is clear enough that the Athabaskan relative forms discussed in this paper belong together. If a Navaho form like *l'cab-i* is to be interpreted as THE ONE HAVING (OR CONNECTED WITH) A HAT, we may venture to interpret a verbal derivative like Hare *k^wε-ε* AS THE ONE HAVING FALSEHOOD, an adjectival derivative like Navaho *jun-i* AS THE ONE HAVING GOODNESS. There is certainly no serious point of morphology that would make such an interpretation impossible. As it is, it is sometimes an arbitrary matter whether we assign a given relative form to an adjectival or to a nominal source. In Navaho *ga k'is-i* ONE-ARMED, ARMLESS, *k'is-i* SHORT, CRIPPLED, DEPRIVED OF may be looked upon as an adjectival (or verbal) formation (cf. *gud-i*

above). Identical, however, with Navaho *k'is*, which I have not found in its bare form, is Anvik Ten'a *k'xθ* PIECE (OF) (Athabaskan **k'ēs*). Clearly it makes little or no difference, from the Athabaskan standpoint, whether we analyze *ga k'is-i* verbally as THE ONE WHOSE ARM IS CUT OFF (cf. Navaho verb *-k'ε*, *-k'ε'*, *-k'i* TO CUT WITH A KNIFE), adjectivally as THE ONE WHO IS SHORT OF AN ARM, or nominally as THE ONE WHO HAS AN ARM-PIECE, AN ARM-SEVERANCE. In

the same way, it seems an indifferent matter whether we interpret Montagnais *ts'aγ-ε* verbally as THE ONE WHO IS (ALWAYS) CRYING or nominally as THE ONE WHO (ALWAYS) HAS TEARS, WEEPING; or Navaho *yεl-i* (a sobriquet for a hunchback) verbally as THE ONE WHO IS WONT TO CARRY (A BURDEN) (cf. Navaho *-xε* or *-xεt*, *-y'i*, *-xε't*, TO CARRY ON ONE'S BACK, TO HANDLE A BURDEN), or nominally as THE ONE WHO (ALWAYS) HAS A BURDEN.

THE PHONETICS OF HAIDA

By E. SAPIR

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INTRODUCTORY

The following notes on the sounds of the Skidegate dialect of Haida are based on material which I was fortunate enough to secure from Peter R. Kelly, a well educated Haida Indian who is at present engaged in missionary work among the Indians at Nanaimo, Vancouver Island. Mr. Kelly visited Ottawa in March, 1920, as member of an Indian deputation to the Canadian Government and was too much occupied to give me more than a few hours. In spite of the brevity of my notes I believe the insight gained into Haida phonetics is sufficient to warrant this paper. I cannot, of course, give an adequate account of the Haida sound-

system, but purpose merely to present data supplementing Dr. Swanton's brief statement¹. The phonetic system employed in this paper is explained in « Phonetic Transcription of Indian Languages » (Smithsonian Miscellaneous Collections, vol. 66, n° 6).

A remark or two on the general impression produced by Haida may be of interest. I took several opportunities to have Mr. Kelly speak Haida connectedly and was thus enabled to hear it long enough to form a definite image of its acoustic quality. It is one of the most remarkable languages that I have ever heard. Indeed, I cannot recall having at any time heard connected speech that appeared more definitely possessed of individuality. The great frequency of nasal consonants (*n*, *ŋ*), the constant occurrence of sonorous *g*-sounds, the profusion of *l*-syllables (see below, p. 152), and the musical cadences are probably the chief determinants of this individuality. Haida is very far from being a harsh language. On the contrary, it was voted a beautiful language by all who heard Mr. Kelly's recital of a Raven myth. Several of us in Ottawa heard connected Mohawk, Tsimshian, Nass River, Thompson River, Shuswap, and Danish at the same time. If we were asked to rate these seven languages on the score of acoustic appeal, I believe the consensus of opinion would be a division into four groups: Haida as an easy

1. See pp. 210-215 of J. R. Swanton, *Haida, an Illustrative Sketch* (Bureau of American Ethnology, Bulletin 40, pt. I, pp. 205-282 [1910]).

first; Mohawk as a fairly pleasant, but none too close, second; Tsimshian, Nass River, and Danish as a moderately uneuphonious third; and Thompson River and Shuswap as an execrable last. These remarks are of no great scientific value, but they may be of some interest none the less as serving to bring home the fact that the « harshness » of certain West Coast languages results from the printed page rather than from their actual articulation.

I. — CONSONANTS.

THE CONSONANT SYSTEM. — Swanton recognized 28 organically distinct consonants in Haida. I believe his table errs in two respects: in not including a number of sounds which he recognizes as existing but does not consider as elements of the fundamental sound pattern of the language; and in neglecting to take account of certain sounds that he did not hear. To the former class belong the anterior palatals and the labialized gutturals and velars. To the latter class belong the glottal stop¹ and a set of glottalized nasals and semivowels.

As to the anterior palatals, Swanton remarks, "An anterior palatal series might be added to these, but the sounds to be so characterized seem only palatals followed by a close [read "front"] vowel." I do not know if this is originally true or not, but I think there can be no reasonable doubt that the anterior palatals are felt as a primary series. They occur before *i*-, *u*-, and *a*-vowels, which last they color to *ä*. It is true that in such a form as *xäi* ARM one sometimes hears a slight *i*-glide (*x'äi*), but I do not think we have the right to conclude that *xäi* is felt as a secondarily modi-

fied form of *xiai*, though it is of course possible that it may go back to such a form. At any rate, I prefer to consider the anterior palatal series as a phonetically well defined primary group of consonants and the *i*-glide, when it occurs, as the secondary fact. I do not hear *gia'da.i* THE BLANKET, for instance, but *gä'da.i*. As a matter of fact, Mr. Kelly's ear proved extremely sensitive on the difference between the *k*- and *k̄*-series. The word for EYEBROWS was at first recorded *sk'ä'dji*, but this pronunciation, in spite of the *ä*-vowel, did not satisfy him. The correct form is *sk'ä'dji*. There is even reason to believe, if my record is to be trusted, that there is a difference between the *k*- and the *k̄*-series before *i*-vowels. Thus, I heard *go'xag'l-gx* TO BE STARTING TO BURN, not *-gul-* (misheard for *-gul-* ?); *t'a'gi'ga* TO BE THROUGH EATING, not *-gi-* as in *gi'sd'iŋ* TWO BLANKET-LIKE OBJECTS. However, I have not enough evidence on this point to be justified in speaking with confidence.

As regards the labialized gutturals and velars, Swanton sometimes writes according to the form *kwa* (i. e. *k'wa*) TO STRIKE, at other times according to the form *sgoä'nstŋ* (i. e. *sgwa'-nstŋ*) ONE. Here again I think there is no reasonable doubt that we must look upon the labial element (whether written *w*, *u*, or *o* in Swanton's material) as a constituent element of a primary labialized *k*-sound. Counting the anterior palatals, the two sets of labialized *k*-sounds, and the new glottal and glottalized consonants, we have 47 primary consonants in Haida. They may be arranged as follows (see p. 145).

Of these consonants, I did not myself obtain an example of aspirated *p* but set it in the table because of Swanton's form *djA'pAt* TO SINK SUDDENLY, which I interpret as *djx'p'at*. It may, however, be really *djxp'at* (i. e. *djxp + 'at*; cf. *xax'i* EYE), in which case *p'* would have to be removed from the table. Aside

1. I am not referring to the glottal stop, if it is a glottal stop, of Masset Haida, which corresponds to Skidegate velar *g*, but to a primary glottal stop in Skidegate itself.

	Intermediate Stop	Aspira- ted Surd Stop	Glottal- ized Surd Stop	Nasal	Glottalized Nasal	Voice- less Spirant	Voiced Spirant	Glottalized Voiced Spirant
Labial	<i>b</i>	<i>p'</i>		<i>m</i>	<i>'m</i>		<i>w</i>	<i>'w</i>
Dental	<i>d</i>	<i>t'</i>	<i>t'</i>	<i>n</i>	<i>'n</i>	<i>s</i>		
Palatal Sibilant (Affricative)	<i>dj</i>	<i>tc'</i>	<i>t'c</i>					
Anterior Palatal	<i>g</i>	<i>k'</i>	<i>k'</i>			<i>x</i>	<i>y</i>	<i>'y</i>
Guttural	<i>g</i>	<i>k'</i>	<i>k'</i>	<i>ŋ</i>	<i>'ŋ</i>	<i>x</i>		
Labialized Gut- tural	<i>gw</i>	<i>k'w</i>	<i>k'w</i>			<i>xw</i>		
Velar	<i>g</i>	<i>q'</i>	<i>q'</i>			<i>x</i>		
Labialized Velar	<i>gw</i>	<i>q'w</i>	<i>q'w</i>			<i>xw</i>		
Lateral ¹	<i>dl</i>	<i>tl</i>	<i>t'l</i>			<i>l</i>	<i>l</i>	<i>'l</i>
Laryngeal						<i>h</i>		

from *w* and *'w*, which are common, and *m*, which is not rare as syllabic final, labials are very uncommon in Haida. Most, if not all, examples of initial *m* and *'m* may be suspected of occurring in Tsimshian loan-words. Besides the 47 primary consonants that I have tabulated, three secondary ones must be noted: syllabically final *p* and *t*, which are true surds but unaspirated, and spirantal velar *ŋ*; *p* and *t* are secondary forms of *b* and *d*, while *ŋ* is sometimes heard as a variant of *g* between vowels. It is barely possible that we should distinguish between guttural *ŋ* and velar *ŋ*, but I did not hear the latter sound.

THE INTERMEDIATES. — By “intermediates” are meant unaspirated “voiceless lenes,” consonants pronounced with the voicelessness of typical French surds (*p*, *t*, *k*) but with the lesser energy of our sonants (*b*, *d*, *g*). To the ears of English-speaking persons they are more apt to sound like sonants than surds, while Frenchmen would be almost certain to set them down as typical unaspirated surds. The Haida intermediates are identical with the corresponding series heard in Iroquois, Athabaskan, Takelma,

1. First three laterals are affricative.

Yana, Achomawi, and Miwok. A recent opportunity to study Mandarin Chinese phonetics has made it clear that these typical American “intermediates” are absolutely identical with the unaspirated surds of Chinese, which sound distinctly “softer” than the surds of French or Italian. It is possible that the Haida intermediates are sonant at the moment of release, but their general effect, if carefully heard, is certainly not that of sonants. They are here written as sonants because it is convenient to adhere to established usage and because it is advisable to keep *p*, *t*, *k* for the “harder” secondary forms that may result from them under appropriate circumstances. The *w* of *gw* and *gw* and the *l* of *dl* are fully voiced. I suspect that the *d* of *dl* is at least partly voiced also. A word as to *g*. This is generally a very firmly pronounced stop, but it seemed to me that a faint uvular trill could sometimes be detected as a glide between the *g* and a following vowel.

Examples of intermediates are:

a'bx TO CHEW FOOD FOR A CHILD

dxŋ THOU

sdx'nsvŋ FOUR

k'u'dx LIP

dji'dju TO BE SPLIT UP

dja'dz WOMAN
gu EAR
di'gudja'rga MY DAUGHTER
t'a'gz TO EAT
gwa'i ISLAND
ga''na BUCKET
ga'xa' CHILD
gwa SEA-BIRD (sp.)
dla'i PEACE, QUIETNESS

After an accented short vowel Swanton heard a *t* before *dj* and *d*. Hence he writes *k!A'tdju* and *xA'tdju* SMALL¹ for what I heard as *k'a'dju*; similarly, *k!A'tdAla* SMALL ONES². The firm, voiceless attack of the *dj* after a markedly short vowel created the illusion of a syllable-closing *t*. As his classifiers *k!At-* and *xAt-* are illustrated only before *dj*, it is almost certain they should be read *k'a-* and *xa-* (Swanton's *x* and *x*, it should be remembered, are my *x* and *x* respectively). He himself writes *xA-* in *xA'dAla*, the plural of *xA'tdju*³. That our analysis is correct is demonstrated by *k'a'sgwan-sŋ* ONE LITTLE OBJECT, *k'asdi'ŋ* TWO SMALL OBJECTS. The point is of some interest for Nadene, as it leaves Haida *k'a-*, classifier for small objects, identical with its Tlingit cognate *-k'a* TO BE SMALL.

THE UNASPIRATED HARD STOPS. — When *b* and *d* appear at the end of a syllable, they sound much more like our *p* and *t* than do the ordinary intermediate *b* and *d*. They impress the ear as the normal English *p* and *k* in which the breath release has been suppressed. Examples are:

t'a'pdju TO BE TALL AND STRAIGHT
d'a'pdju TO BE VERY SHORT⁴

1. *Op. cit.*, p. 231.

2. *Op. cit.*, p. 241.

3. *Op. cit.*, p. 276.

4. Swanton gives *t!Ap-* as a classifier for short and protruding objects (*op. cit.*, p. 234), which does not correspond to my data. He does not give *dAp-* as a clas-

di'gitga MY CHILD
q'e't SPRUCE (cf. *q'e'd-a* TO BE SPRUCE)
sget RED
gi'xit TO PICK UP (A CANOE)

That the final stops are not aspirated is a noteworthy fact in view of the common American Indian rule that final stops, whether intermediate or aspirated surd in origin, are released by a markedly audible breath (e. g. Ojibwa, Tlingit, Nootka, Comox, Takelma, Yana, Paiute). In this respect Haida differs from its remote relative, Tlingit and is in accord, it would seem, with certain Athabaskan dialects.

Goddard writes, e. g., Hupa *Lit* SMOKE, while the Franciscan Fathers write *tid* in Navaho. It is likely that an unaspirated surd is meant in each case. If I may trust my memory of Chasta Costa, there too final stops are unaspirated, e. g. *t-t'at* TO GO TO PIECES.

THE ASPIRATED SURDS. — These are "hard" and markedly aspirated surds, much like our English *p*, *t*, *k* when initial before vowels except that they are even more strongly aspirated. They are identical in every respect with the aspirated surds of Athabaskan, Tlingit, Takelma, Yana, and Chinese.

Examples are:

t'a TO EAT
st'a FROM
tc'inga GRANDFATHER
tc'i'dju TO BE A BIG, BLOWN-UP THING
k'a'xwa OUTSIDE
k'un POINT, NOSE
sk'a'dju TO BE SMALL AND ROUNDISH
k'wa'i HIP
q'a'dji HEAD
q'i'ngaxŋ TO BE SEEING

sifier. Apparently there was some confusion between these rhyming classifiers.

5. Swanton defines the classifier *tc'i-* (*op. cit.*, p. 227) in terms of « such objects as full sacks and bags, pillows, etc. ». Mr. Kelly stated *tc'i-* referred primarily to the blown-up stomach of a seal used as a float in fishing.

q'wa'i ROPE
tta's BRANCH
tc'a'ttdju'gα TO BE FAT

Swanton remarks, "It is doubtful whether *d* and *t* [i. e. *t'*] and *dj* and *tc* [i. e. *tc'*] really exist as recognizedly separate sounds"¹. I do not see how there can be any reasonable doubt on this point. *da'* THOU and *t'a'* TO EAT; *dji'*-, classifier for cleft objects (like hands), and *tc'i'*-, classifier for blown-up objects², are as perfectly distinct as *g* and *k'* or *g* and *q'*. (Swanton does not list *dji'*- as classifier. He either did not isolate it as a classifying element or he confused it with *tc'i'*-. Examples of its use, besides *dji'*-*dju'* already quoted, are *stta'i dji'-sgwa'nsuŋ* ONE HAND [literally, HAND CLEFT-ONE], *stta'i dji'-sdi'ŋ* TWO HANDS, *k'u'dα dji'-sdi'ŋ* TWO LIPS. There is no doubt that there are plenty of examples of *dji'*- in his material. Note, for instance, *dji'wAl* [Masset] ROOTS OF FALLEN TREES).

THE GLOTTALIZED STOPS AND AFFRICATIVES.

— These are the well known stops and affricatives pronounced with simultaneous glottal and oral closure and with glottal release following upon the oral release. Swanton says, "Some speakers bring these out very forcibly, while others pass over them with considerable smoothness"³. Mr. Kelly pronounced them quite as smoothly as any other consonants. Their essential nature is certainly not to be explained as due to "urging more breath against the articulating organs than can at once pass through"³. If there is a true "fortis" series in Haida and Athabaskan, it is the aspirated surds, which are indeed pronounced with an excess of breath.

Examples of glottalized surds are :

1. *Op. cit.*, p. 210.
2. *Op. cit.*, p. 210.
3. *Op. cit.*, p. 210.

t'a'gun FEATHER
t'a'ŋαl TONGUE
st'a'i FOOT
t'cu' RED CEDAR
q'αnl'cidx CHEEK
q'a't'caŋ TO BE GOING IN
k'ä'll LEG⁴
k'i'dji SEAL-STOMACH
k'a't DEER
k'u'dα LIP
k'wa'i TO WAIT
q'a'ŋ HEMLOCK
q'e'sdi'ŋ TWO SPHERICAL-LIKE OBJECTS
q'wá'ŋ TO BURST
t'ta'dzn GORGE
t't'll WE⁵

I may note that *t'c* tends to move front in its position — either to that of an anterior palatal *c*- sound (*t'c*) or even to that of an *s*- sound (e. g. *i'tnl'sidx dla' msduŋ* TWO GIGANTIC PEOPLE; but also *q'αnl'cidx* CHEEKS. Does *t'cidx* correspond to Swanton's *-djít* (*op. cit.*, p. 260) ?

THE VOICELESS SPIRANTS. — These require no special comment. *x* is pronounced like *ch* of German *ich*. As Swanton remarks, *s* often interchanges with *dj*⁵, which does not normally occur as a syllabic final. Swanton states that "*s* becomes *dj* before most vowels". Inasmuch as both *dj* and *s* occur between vowels (e. g. *i'dji'* TO BE; *i'sdxŋ* TO BE CAUSING TO BE; but also "participial" *-asi*, *-asi*), would it not be better to say that *-dj-* becomes *-s* just as *-b-* and *-d-* become *-p* and *-t*? We would then have one final (*-s*) representing two distinct intervocalic consonants (*-s-* and *-dj-*).

Examples of voiceless spirants are :

sda'nsaŋxα EIGHT
a'k'osu THIS THING
xäi ARM

4. See p. 152 regarding syllabic *l*- sounds.
5. *Op. cit.*, pp. 214, 215.

t'a'xidiga TO BE ABOUT TO EAT
xa'ya SUNLIGHT
xwi' TO BE COLD
xa' DOG
xa'η'i' EYE
xil NECK
xwa'tgo' A THING THAT IS LOOSE
ta', ta, t̄l I
tgu'n'ut THREE

THE NASALS AND VOICED SPIRANTS. — Of the three nasals, *n* and *ɕ* may occur as either syllabic initial or syllabic final. In such a word as *'la'ɣaŋa* THEIRS the guttural nasal *ŋ* must be considered as belonging to the final syllable, in such a word as *xa'η'i'* EYE to the first. *m*, as we have already seen, is rare as an initial but not uncommon as a final.

Examples of final *m* are :

t'admju' TO BE SOMETHING THIN AND ROUNDED
t'am LICE (Mr. Kelly considered this word as connected with the classifier *t'am-*. This may be only a folk etymology, however.)
dla'mdju' TO BE A GIGANTIC PERSON
ga'mdju' TO BE A WIDE THING
gä'mdju' TO BE A LARGE (CANOE, BLANKET)

Several Haida syllables ending in *m* seem to belong to a set of classifiers :

t'am- THIN AND ROUNDED
dla'm- GIGANTIC, CORPULENT (?)
ga'm- WIDE AND ROUNDED
gäm- LARGE (in reference to canoes and blankets)

tgam- (Swanton) LARGE AND ROUNDISH (e. g. rattles)

k'am- (Swanton) SMALL AND ROUNDISH

ga'm- (Swanton) LARGE AROUND (?)

dla'm-, *ga'm-*, and *gäm-* are not listed by Swanton. My *ga'm-*, however, may be the same as his *ga'm-* (op. cit., p. 235); I am certain of the velar *g*, for the element was also recorded as *ɣam-*, e. g. *gu' ɣam-sgwa'nsuŋ* ONE BIG EAR.

Although the evidence is far from complete, I would risk suggesting that this set, of which there are doubtless other members, contains a common element *-m-* indicating something like ROUNDED, ALL AROUND. This view is strongly supported by the fact that several of the *m*-classifiers are clearly related to other classifiers without *-m* or with final *-p*. Thus, to *t'am-* may correspond *t'a-* (Swanton) COILED AND FLEXIBLE; to *ga'm-* evidently corresponds *ga'-FLAT* (e.g. *gu' ɣa'sgwa'nsuŋ* ONE FLAT EAR); *gäm-* is clearly related to *gi'-CANOE, BLANKET-LIKE* (e.g. *tu' gi'sgwa'nsuŋ* ONE CANOE and *gä'at gi'sd'i'ŋ* TWO BLANKETS : *tu' gä'mdjuŋ* A LARGE CANOE, *tu' gä'mdɕlɕ sd'uŋ* TWO LARGE, SPREADY CANOES, *gä'at gä'mdɕlɕ gi'sd'i'ŋ* TWO LARGE BLANKETS); *tgam-* probably belongs to *tga-* (Swanton) BRANCHING OBJECTS; *k'am-*, as Swanton himself points out, is derived from *k'a-* SMALL; and *sta'm-* belongs with *stɕp-* (Swanton) SLIM.

Parallel to the *-m-* series is a *-p-* series (*t'ɕp-*, *dɕp-*, *stɕp-* [Swanton], *t'ɕp* [Swanton], and *skɕp-* [Swanton] = probably *sk'ɕp-*). Of these, *t'ɕp-* may go with *t'am-*; *stɕp-*, as we have seen, with *sta'm-*; *t'ɕp-*, judging from Swanton's one example, which refers to the surface of the moon, goes well with his *L!*-THIN AND FLAT (as I shall show later, this must be interpreted as *t'ɕ-*, a reduced form of *t'ɕx-*, *t'ɕa-*); and *skɕp-*, which in his one example refers to the curled tail of a dog, may go with *sk'a-* ROUNDISH (used of eyes, water-drops, berries). The meaning of the *-p-* series is more obscure than that of the *-m-* forms; possibly STUBLY PROTRUDING covers the case. On surmises that the complete set of Haida classifiers is a more complex subject than Swanton's data represent. Further, that the *t-* and *s-* which begin so many of the classifiers (and other noun and verb stems) are vestiges of an older classificatory system that was related to the *h-* and *s-* classifiers discovered by Boas in Tlingit. The

whole subject of Haida classifiers needs a renewed and intensive study.

Examples of *n* and *ŋ* are so numerous in the forms scattered in this paper that I do not need to give further examples here.

Unglottalized *w* does not seem to be as common a sound as glottalized *w*. Examples of *w*, *y*, and *l* are :

ha'w'i HURRY !
t'si'wə'gə TO BE A CEDAR-BOARD
yä'galəŋ ANCESTORS
ga'yū SEA
q'a't'caya'gan WENT IN
l'a'l'ŋ WE
xl NECK
sk'a's'oləŋ A ROUND THING

THE GLOTTALIZED NASALS AND VOICED SPIRANTS.— The sounds coming under this heading are identical with the corresponding sounds in Kwakiutl, Nootka, Nass River, and Tsimshian. I have not heard the Kwakiutl sounds of this type, but the Nootka series ('*m*, '*n*, '*w*, '*y*), the Nass River and Tsimshian series ('*m*, '*n*, '*l*, '*w*, '*y*), and the Haida series ('*m*, '*n*, '*ŋ*, '*w*, '*y*), sound perfectly analogous to me. I hear no difference; for instance, between the '*w* of Nootka '*wa'yi*' HIGH HILL, of Nass River '*w*' GREAT, and of Haida '*wxs*' THAT THING. I speak of this because Boas has differentiated the '*m*, for instance, of Kwakiutl from the '*m* of Tsimshian, which he writes *m*! and considers a "fortis" *m* analogous to "fortis" *p*! (our *p*'). In classifying these sounds with the glottalized stops and affricatives ("fortes") of Tsimshian I believe he is perfectly correct, for they all belong together psychologically, but this grouping applies fully as well to Nootka. When I first taught a Nootka Indian to write phonetically and explained the meaning of such symbols as *p*! and *t*! (for which I now write *p*' and *t*'), I was interested to find that he wrote *m*! of his own accord where I was in the habit

of writing '*m*. He seemed puzzled to find that I was not using an analogous orthography for the glottalized stops and affricatives on the one hand and the glottalized nasals and semivowels on the other. This instance demonstrates pretty clearly, it seems to me, that the native phonetic feeling of Nootka finds the essential peculiarity of the "fortes" in their glottalization and not in their supposedly "increased stress of articulation," for in such Nootka sounds as '*m* and '*n* there seems to be no increase of stress.

In the glottalized stops and affricatives the closing of the glottis lasts during the whole oral articulation of the consonant and beyond. In the glottalized nasals, semivowels, and voiced lateral, however, the glottis is closed simultaneously with the oral contact but released instantly thereafter, the voiced continuant thereupon becoming fully audible. The acoustic effect, therefore, of such a sound as '*m* is very nearly of a glottal stop followed by *m*-, yet not quite, for a conscious compounding of '*+m* nearly always fails to satisfy the Indian's ear. That the glottal element is felt to inhere in the consonant is clear from the syllabification. In such words as Haida *ga'na* BUCKET and *t'a'na* CHILD the glottal stop belongs to the second syllable, not to the first. In neither Haida nor Nootka, as a matter of fact, can a syllable end in a glottal stop.

So far as I know, '*ŋ* has not yet been recorded for any other Indian language. It is not a common sound, nor are '*m* and '*n* frequent in Haida; '*m*, as I have already indicated, probably occurs mainly in Tsimshian loan-words. On the other hand, '*w*, '*y*, and '*l* are exceedingly common sounds, appearing in some of the most important stems in the language (e.g. '*wa*-THAT, '*yu*'-BIG, '*la* HE). How important is the distinction between '*y* and *y*, for instance, may be seen from the fact that when I pronounced Swanton's *yū'An* BIG as *yū'an*, Mr. Keily had not the remotest idea what it meant; it should

have been 'yu''an. The finding of these sounds in Haida was unexpected. They are not found in Tlingit and seem also to be absent in Athabaskan — with one interesting exception. In Navaho the Franciscan Fathers have recorded 'n. It is the regular correspondent there of an etymological *t* + *n*.

Examples of glottalized nasals and voiced spirants are :

'ma' (exclamation of pain)

'madjx' OCHRE (Probably borrowed from Tsimshian. Cf. Tsimshian *mes-* REDDISH, *mes-d'us* OCHRE ; perhaps Boas' *mes-* is to be read 'mxs-.)

ga'na BUCKET

'ŋa'ga'ŋga'ŋ TO VIE WITH ONE ANOTHER

'wa'ngx TO LOOK FOR FOOD AT EBB TIDE

'wxs' THAT THING

'yu''an BIG

'la' GOOD

'la', 'lα, 'll HE

THE LARYNGEAL CONSONANTS. Every stem that apparently begins with a vowel really begins, in all probability, with either a glottal stop or with *h*. Examples of glottal stops beginning syllables are :

'a'dja SMEARED WITH PREPARED SOAPBERRIES

'a'll PADDLE

'duga MOTHER

'a'ttgan HERE (Swanton writes *ā'LgAn*, but I heard *tt*, not *dl*. This may be a mishearing on my part.)

't'tlgā'ya OURS

't'tŋ MAN

'l' 'i'tŋ q'e'dju'gx HE IS A STOUT MAN

na'g^o'i 'ya 'a IN THE HOUSE

'yu''an BIG

tgu'nut THREE

tt'yu'n'ut SIX

ttā''at TEN

sk'a's'olαŋ A ROUND THING

In a few cases the glottal stop was not record-

ed, e.g. *t'tŋ'sidα sdŋ* TWO MEN, *ga'xα i'tŋα* CHILD-MALE, BOY, but these are either mishearings or secondary slurrings on the part of the speaker.

There are, however, at least two important elements that begin, or seem to begin, with a vowel unpreceded by a glottal stop. These are the demonstrative *u*, *o* (*u*, *o*) and the verb *i'dji*, *is*. Examples of the demonstrative are :

di sk'adj u i'dji IT IS MY EYEBROWS

*gā'gx n*α*'i (y)u* MY HOUSE (Note the glide *y*, indicating clearly that no glottal stop has been slurred. *gā'gx* is probably assimilated from *gā'gxŋ*, see Swanton, op. cit., p. 259, who writes *gi'gañ*)

'la'o HE < 'la o'

ta'o I < ta o'

'w's'i o go'xag'lgxŋ THAT IS STARTING TO BURN

na'gai 'v'o ta q'a'tcar I GO INTO A HOUSE
d'k'os u THIS THING¹ .

'wa'sga.i sdŋ o t'si'wα'ga THOSE TWO ARE CEDAR BOARDS.

The reason for this absence of the glottal stop has been indicated by Swanton. The general demonstrative of reference is *hau* (Swanton's *hao*), often contracted to *u*, *u*, *o*. The vocalic hiatus without glottal stop is thus the etymological equivalent of an old *h*.

Examples of the verb *i'dji*, *is* are :

ta'o na'i 'ya e'dj:ŋ I AM IN A HOUSE

ttlgw' u tx isdŋ I CAUSE IT TO BE AWAY, I PUT IT AWAY

See also the first example under demonstrative *u*, *o*. The consistent absence of the glottal stop in this verb may possibly be explained as a slurring, but I think it more likely that it is to be interpreted as due to an old *h* that has disappeared. I would suggest that *i'dji*, *is* is a

1. *a-* slurred from *'a-*, the demonstrative stem THIS corresponding to *'wa-* THAT.

later form of *hi'dji*, *hw*, and that this verb is to be understood as composed of a demonstratives stem *hi-*, *hi-* (cf. *hi'-dll-gal* COME HERE! and Swanton's *hi-t!A-gA'n* THEN, *hi-ñd'n* ONLY). Just as this *hi-* parallels *ha-* (cf. Swanton's *hx-n* LIKE, AS FOLLOWS; general demonstrative *hao* > *u*, *u*, *o*; "article" **hai*, parallel to *gai*, in e. g. **na hai* HOUSE-THE > *na'i*), so **hi-dji*, **hi-s* TO BE parallels an old **ha-s*, preserved as Swanton's "participial" -*as*, -*és*, -*es*. Such a phrase as Swanton's *nañ gaxá'gas* ONE WHO WAS A CHILD is to be interpreted, it seems to me, as *nxñ gaxa'-g a-s* ONE CHILD-BE IT-IS, contracted from an older *gaxa'-ga ha-s*. Such endings as -*t-si* (Swanton) are probably to be interpreted as -*tʃsi* < -*t-xsi*, *t-asi*, which occurs as phonetic parallel. See below on *l-* syllables.

Though *h* has demonstrably dropped out in certain cases in intervocalic position, it is a clearly articulated consonant when preserved, e.g.:

hi'dllgal COME HERE!
haw't HURRY!

SECONDARY CONSONANTAL PROCESSES. Final vowels are, as a rule, released without breath. This is in keeping with the phonetic forms -*p* and -*t* instead of *p'* and *t'*. A few cases of breath release have been noted, however, in absolutely final position:

na' HOUSE (but *na t'e'-sdvñ* TWO HOUSES)
go'gax' (IT) IS ON FIRE
go'daxa' SETS FIRE TO

Rather frequent is the spirantal voicing of *g* to velar *ɣ* between vowels:

dx'ɣgä'ɣa YOURS
'la'ɣa'ɣa gä'ɣa THEIRS
'wa'n'ɣa TO GO DOWN TO LOOK FOR FOOD AT

EBBTIDE

da' ta ɣo'da YOU START THE FIRE!
na'gai ɣi' INTO A HOUSE

1. *Op. cit.*, p. 254.

ga-t'a' 'l'ɣai'ɣa SOMETHING-EAT KEEPER,
EATER

dji'go'ɣa SEVEN

gu' ɣa'sgwa'nsvñ ONE (FLAT) EAR

q'o'ɣa ROCK

Less often *g* is spirantized and unvoiced after initial *t*:

tʃa' STONE (for *tga'*)

Before *s*, *tʃ*, *n*, and *t* there is sometimes assimilation of *ɣ* to *n*:

sdax'nsvñ FOUR < **sdaxɣ-sdvñ* TWO-TWO

i'tnt'sidx dla'msdvñ TWO GIGANTIC PEOPLE
(cf. *i'tvñ* MAN)

dxn tʃ I THEE... (from *dxɣ tʃ*)

gä'gxn na'i MY HOUSE

But this rule is not invariable: -*ɣ* is preserved, e.g., in:

'i'tvñ t'sidx dx'psdvñ TWO STUBBY MEN

On the other hand, *n* does not assimilate to *ɣ* before *g*:

tʃ'inga GRANDFATHER

'llgax'nga COUSIN

INITIAL CONSONANT CLUSTERS. — Every Haida syllable begins with one of the forty-seven consonants listed in the table, or with a cluster of two consonants, or with a vowel (originally preceded, it would seem, by *h*). The first element of the cluster is always *t-* or *s-*. The second element is an intermediate, aspirated, or glottalized stop or (after *s*) a *tʃ*, never, I believe, a sibilant affricative or a spirant; *tʃ-* is merely a secondary form of *tg-*. Examples are:

tʃi- (classifier for fairly big, roundish objects)

tga' STONE

tgu'n'ut THREE

tk'a'i CHIN

sdvñ TWO

sget RED

sgwa'ns:ɣ ONE

st'i'wai THE SEA-EGG

sk'a- (classifier for round objects)

sq'au GROUSE

st'a'i FOOT

sq'a'- (classifier for long objects)

I obtained no example of *t* before a glottalized stop; Swanton gives *tk!A'mAl* NEEDLE OF CONIFEROUS TREE. I suspect that his *tñ-* is really *tʃn-*, as it would be an isolated example of *t* (or *s*) + nasal. Swanton fails to distinguish initial *sd-* from *st'-*. He writes both *st-*. Another error is his group *sL!-*. It may exist, but his instrumental *sL!-* WITH THE FINGERS and *sL!āi* HAND are really *stʃ!* and *stʃa'i*, probably related, with *s-* prefix, to *tt!* TO TOUCH (Swanton's *L-*, p. 226).

Swanton's clusters with initial *l*, *dl*, *tt*, and *tʃ* do not really exist. These *l*-sounds are in every case to be interpreted as syllabic *ʃ*, *'ʃ*, *dlʃ*, *ttʃ* and *tʃʃ* (see below).

II. — THE SYLLABLE.

Before taking up the vowels, it will be convenient to define the Haida syllable. There is no doubt that the language, like Athabaskan, has a strong and well-defined feeling for the syllable as an integral phonetic and psychological unit of speech. It therefore becomes important to understand its structure. Aside from the secondary loss of *h* and the slurring of *'*, every syllable begins with a consonant or an *s-* or *t-* cluster of two consonants. It may end in a vowel (long or short), a diphthong (long or short, but I suspect that all long diphthongs are felt as the equivalent of two syllables of form **-ahai*, **-ahau*), an *l*-vowel, a consonant, or a cluster of two consonants ending in *t* or *s* (these clusters are likely, however, to be secondary forms of older disyllabic forms, e. g. *i'djins* [Swanton] < *i'djiŋas*). The final consonant can be only *m*, *n*, *ŋ*, *s*, unaspirated *p* or *t*, *l*, *t*, or *tt*. All of Swanton's examples of final *dl* and *tʃ* are to be interpreted as *dlʃ* and *tʃʃ*. Swanton speaks of non-

vocalic stems like "L TO TOUCH" or "sL TO PLACE IN A CERTAIN DIRECTION." These elements are syllabic: *ttʃ*, *stʃʃ*. Many of his non-vocalic groups are even disyllabic, e. g. *tʃʃʃʃ* (Swanton's *L!t*).

SYLLABLES WITH L-VOWEL. — In normal English pronunciation the second syllable of a word like *metal* consists of a consonant followed by an *l*-vowel. In other words, there is no pure vowel in the syllable at all, not even a "mid-mixed" *æ*. The tongue does not release its stop position but merely adjusts itself on the spot to a lateral articulation. Such words as *metal*, *medal*, *flannel* are phonetically *mɛ'tʃ*, *mɛ'dʃ*, *flæn'ɲ*.

The peculiarity of the Haida *l*-syllables, of which there are a vast number in the language, is that they always begin with a lateral consonant, voiced or unvoiced. The following table shows the relation between the simple laterals and the syllables with *l*-vowel:

Syllable with <i>æ</i> -vowel	Syllable with <i>l</i> -vowel
<i>lx</i>	<i>ʃ</i> (<i>l</i> , <i>l</i>)
<i>'lx</i>	<i>'ʃ</i> (<i>l</i> , <i>'l</i>)
<i>dlx</i>	<i>dlʃ</i> (<i>dl</i> , <i>dl</i>)
<i>tx</i>	<i>tʃ</i>
<i>ttx</i>	<i>ttʃ</i>
<i>tʃx</i>	<i>tʃʃ</i>

The syllables in the second column are reduced forms of those in the first, with which they vary in Swanton's orthography (e.g. *Lga* or *LA'ga* LAND, both to be understood as *ttʃga*). They also interchange actually according to accentual or other phonetic circumstances with full syllables in *a*, *a*, *æ* (e. g. *'la*, *'la* in *'la' x'x'ŋ*: HIS EYES, *na'i ŋi 'la q'a't'caŋ* HE IS GOING INTO THE HOUSE: *'ʃ 'i'tvŋx tɛ'i'dju* HE IS A BLOWN-UP (OBESE) MAN; *ta* I: *tʃ*; *-dax* adjective plural: *-daxʃ*). That Swanton too heard, though he did not explicitly record, *l*-

syllables is shown by such accentuations as L' -, t' -, L' - and $L!'$ -.

Examples of l -syllables are :

$k'ä'łł$ LEG

$da'łł$ RAIN (recorded as $däl$ by Swanton, which failed to satisfy Mr. Kelly's ear. This word is not only clearly disyllabic, but the accented vowel is higher in pitch than the l -syllable. Cf. Swanton's $däla-gé'it-si$ RAIN FELL, BBAE 29 : 12, l. 8.)

$a'łł$ PADDLE

$q'uł$ FOREHEAD (should have been recorded $q'ułł$ or $q'u'ł'$)

$'llg'z'nga$ COUSIN

$'ł'a'i''a$ KEEPER

$dx'n łł$ YOU I... (not to be confused with $dxant$ SWELLING)

$sgé'łł$ TO CRY

$tłłłł$ TO RUB ONE'S HAND AGAINST

$tłe'łł$ FIVE

$q'a'dłł$ TO GO ABOARD A CANOE

$hi'dłłgal$ COME HERE!

$tłłga'$ EARTH

$tłłgw'$ AWAY

$tłł'u'n'ut$ SIX

$i'łłgä'$ TO SOAK (A DRY SALMON)

$'i'tłłgä'ya$ OURS

When an l -syllable beginning with l , $'l$, or dl is pronounced with very weak stress, the length of the l is of course reduced, though it never loses its syllabic character. We may then write simply l , $'l$, dl . The syl'able $-tłr$ (reduced from $-tłr$) was heard as $-tł$, with syllabic r , in $tła''atł$ (i. e. $tła''atł$ $αr$) $sgwa'ns:r$ gou TEN IT-IS ONE MISSING, NINE.

In interpreting the phonetics of Swanton's texts, there is no genuine syllabic ambiguity in the case of initial L -, L' -, $L!'$ -, and l - before consonants and of final $-L$ and $-L!$, which necessarily represent l -syllables. It is different, unfortunately, with initial t before consonants and with final $-l$, $-t$, and $-L$, which may represent non-syllabic or syllabic laterals. It is im-

possible to tell offhand whether such orthographies as $tge'da-i$ and $ga'lxua$ represent $tge'da.i$ or $tłge'da.i$, $ga'lxua$ or $ga'łxua$. It is hardly conceivable that the morphology of Haida can be adequately understood without an exact knowledge of its syllabification, for the Haida "word" is essentially a group of significant syllables. The recognition of l -syllables is likely to put many points of grammar in a new light. Thus, we may surmise that the two forms of the first person plural (subjective $t'a-lα-r$ and objective $'i'-t'łł$) are closely related, $'i'-t'łł$ being a reduced form of $*i'-t'(x)la$. The true basic forms would then be $t'a$ and $'i'-t'a$, $-la$ and $-lα-r$ being pluralizing elements.

SYLLABIC NASALS. — It is quite possible that we should recognize also syllables of type $ŋ$ and syllabic $ŋ$, alternating on phonetic grounds with syllables of type m and $ŋx$. The alternation of $-ŋ$ ($-n$) and $-ŋx$ in cases like $i'tłr$ (or $i'tłn$) $t'sda sdłr$ TWO MEN and

$i'tłr x sgwa'ns:r$ ONE MAN

should perhaps be interpreted as an alternation of $i'tłr$ ($i'tłn$ by assimilation) and $i'tłr x$. This consideration may explain the constant interchange in Swanton's material of forms like $-gAn$ and $-gAni$, $-agAn$ and $-agAni$, $-gín$ and $-gíní$, in which $-i$ (i. e., $-i$) can hardly be a "perfective" element, as Swanton assumes. For the present, I cannot say whether Haida distinguishes final $-n$ and $-r$ from $-ŋ$ and syllabic $-ŋ$. All I can say is that I feel strongly that while Haida reduces the quantities of syllables freely (e. g., in such a gamut as $'la$, $'la$, $'lα$, $'łł$, $'ł$), it resists the extinction of syllables, and that if syllables are actually lost, they are lost phonetically but not psychologically.

III. — VOWELS.

I am able to give only a preliminary idea

of the Haida system of vowels. The vocalic nuances seem to be due primarily to secondary phonetic causes rather than to basic etymological differences. It is quite probable that there are only three organically distinct vowels : *a*, *i*, *u*. Each of these runs through a gamut of quantities and qualities that give the language a far greater vocalic variety than the simplicity of the fundamental vowel scheme would argue.

QUALITATIVE CHANGES. — The *a*-vowel seems to be the most liable to phonetic change. Its fundamental quality is that of German *a* in *Mann*, e. g. *da'll* RAIN, but when short, whether accented or not, it very frequently assumes the duller timbre of α . Thus, *-ga* TO BE and *ta* I vary with *-gx* and *tł* (i. e. *tx*) in :

ta ga *t'a'ga* I AM EATING SOMETHING

d'k'os u tł t'a'γasgx I SHALL GO AND EAT THIS THING

The α -timbre is particularly common before nasals, e. g. *-gx-ŋ* (continuative of *-ga*) and *-gα-n(ɨ)* (past definite of *-ga*), *t'am* LICE.

(It seems fairly evident to me that Swanton's temporal *-gan* [op. cit., p. 247], future *-sga* [p. 249], and continuative *-gañ* are merely combinations of "declarative" *-ga* TO BE OR TO BE SO and certain particles that he has not properly isolated : *-ŋ*, *-ŋa* TO BE CONTINUOUSLY ; *-s*, *-sa* ABOUT TO BE ; and *-n* *-ni* TO BE AT A GIVEN MOMENT OF TIME, TO HAPPEN. It is clear that they occur also without *-ga*. Boas has already pointed out the analysis of *-s-ga-* [see p. 249]. I hope to show at a future opportunity that the whole tense-modal system of Haida is nothing but a loose compounding of demonstrative elements and particle verbs and that the synthetic nature of this scheme is more apparent than real. Thus, Swanton's "infallible future" *-asañ* [p. 249] is merely a verb phase : *'a-sa-ŋ-* [a] THIS-WILL-BE [DURATIVELY]).

After anterior palatals and *y*, *a* (α) appears as \bar{a} (as in English *mat*), perhaps even as ϵ (as in English *met*), e. g. :

k'ä'xwɔ OUTSIDE

k'ä'll LEG (also heard as *k'ε'l*)

xäi ARM

t'tłgä TO SOAK (A DRY SALMON)

sk'ä'dji EYEBROW

gä'gxñ MINE

gä'da.i THE BLANKET

gäm- WIDE AND SPREADY (classifier)

yä'gxłŋ ANCESTORS

After sibilant affricatives and also before η there is a tendency for α , particularly if unaccented, to pass into ι (English *i* of *bit*). Before η this seems to take place particularly after laterals (*l*, *t*) and sibilants. Examples are :

sdvŋ TWO (cf. *sd'x'nsvŋ* FOUR, dissimilated from *sd'x'n-sdvŋ* < **sd'xŋ* -*sd'xŋ*)

dalvŋgä'ya YOURS (cf. *d'xl'ŋ* YE)

There is no doubt that many Haida syllables in ι are old *a*-syllables, as variants prove ; e. g. *'i'tvŋx* MAN is evidently to be understood as an original *'i'txvŋx* (perhaps actually pronounced *'i'tłvŋx*, as Swanton's variant *itvŋx* seems to indicate), as shown by certain of Swanton's forms, e. g. *itd'n-*, *itd'n̄-*.

After anterior palatals there is good reason to believe that an original *a* is sometimes completely palatalized to *i*, *i*. This is not a mere matter of nuancing, like the change of *a* to \bar{a} or of α to ι , but a definite phonetic process that disconnects the new vowel from its old category. Under what circumstances this change takes place I do not know. I suspect that an old *a* is merely colored to \bar{a} (\bar{a}) after anterior palatals, but that the corresponding short vowel was completely palatalized to *i* (secondarily also *i*'). A good example is *gi-* (classifier for blanket-like objects), which is almost certainly related to *gä-*, *gä-* of *gä'-d-* BLANKET and *gä-m-* (see page 148). The original quantitative relations were probably as follows :

$g_a- > g_i-$

$g_a-d- > g\ddot{a}-d-$

$g_a-m- > g\ddot{a}m-$ (closed syllable, hence with shortened vowel)

Again, g_iw-ai THE EAR : gu EAR can be best explained as palatalized from an old $*gaw-$, final $-au$ of $*gau$ contracting to gu . This interchange of $-i w-$: $-u$ seems to take place also after s , e. g. Skidegate $s\ddot{u}$ (Swanton) TO SAY : $s\ddot{i}w-As$ (contrast Masset $s\ddot{a}w-$). A basic $saw-$ best explains the alternations. Another alternation of similar form is that of tu CANOE : $tt\ddot{w}-d\ddot{i}$ THE CANOE (Swanton always writes $Lu-d\ddot{i}$). This again is doubtless the reflex of an old $thau$: $ttaw-$.

For the i -vowel, i , ι , and e were heard as variant timbres. The ι -timbre is quite frequent, perhaps normal, for the long i -vowel, e. g. :

$\iota'itt\ddot{g}\ddot{a}\gamma a$ OURS

$x\ddot{x}'\eta'$ EYE

$tt\ddot{g}w'$ AWAY

$dj\ddot{i}'g\ddot{o}'\gamma\alpha$ SEVEN

$\iota'itt\eta x$ MAN

Examples of the less common e -timbre are :

$e'dj\ddot{i}'\eta$ IS

$x\ddot{e}t$ REGION OF THE NECK (cf. $x\ddot{i}l$ neck).

The characteristic timbre of the u -vowel is υ (as in English *put*), here written u . The corresponding long vowel was heard partly as o' (e. g. $g\ddot{o}'d\ddot{x}$ TO START A FIRE), partly as u' (as in English *fool*). The latter seems to occur chiefly after sibilants and anterior palatals (e. g. $-dju'$ TO BE SO AND SO, gu' EAR, $'yu''an$ BIG).

A glide a was noted in $'\ddot{t}\gamma a'\ddot{i}''\gamma a$ KEEPER. In $g\ddot{a}'at$ BLANKET, the long a vowel, modified to \ddot{a} after g , reasserts its proper quality before the final t and thus appears as a broken vowel.

VOCALIC QUANTITY. — Quantity is a difficult matter in Haida. It is likely that there are etymological quantitative distinctions, but it is impossible to be certain, as the actual quan-

titative variations are clearly largely due to secondary lengthenings and shortenings of the fundamental vowel. Thus, as already pointed out, $'la$ HE may be shortened to $'l\ddot{x}$, $'ll$, $'l'$ or lengthened to $'la'$. The determinants of this quantitative variation are probably phonetic rather than morphological, but I doubt if stress accent is the only or even the decisive factor, as both the long and the short vowel may occur in an accented or unaccented syllable. I suspect that the distribution of quantities is the resultant partly of inherent quantitative distinctions (e. g. long a' in $y\ddot{a}'g\ddot{x}l\alpha\eta$ ANCESTORS : short a , α in $k'\alpha'dju'$ TO BE SHORT), partly of a tendency to establish a rhythmic equilibrium. This equilibrium seems to depend on several factors, chief among which are the nature of the syllable (a closed syllable tends to be short, an open one long), the place of the accent, and the grouping of the syllables in phrases. It is impossible to give rules at present; the subject is evidently complex. At the same time I do not feel that the quantities are distributed *ad libitum*, rather that they remain to be discovered.

The Haida type of quantitative variation is somewhat similar to that of Athabaskan, if I am not mistaken. Presumably the Tlingit feeling for quantity is analogous to that of Haida. Boas merely remarks that "the quantitative value of Tlingit vowels varies considerably"¹. In the body of his grammar he unfortunately pays no attention to the subject of quantity. The quantitative peculiarities of the Nadene languages are in striking contrast to those of the neighboring languages. In Eskimo, Wakashan, and, I believe, in Tsimshian as well, the inherent quantitative value of a vowel is clearly felt and, on the whole, rigidly preserved. In these languages vocalic quantity

1. F. Boas, *Grammatical Notes on the Language of the Tlingit Indians*, Univ. of Pa. Anthr. Publ., vol. VIII, no. 1, 1917, p. 11.

is as much a matter of etymology as is the consonantal framework of the word. Phonetic variations in the quantity of vowels such as are found in Haida would be well nigh unthinkable in Nootka.

Examples of quantitative alternations are :
a — *ga'xa'* CHILD : *ga'xx i't'ηx* CHILD
 MALE, BOY ; *ga'xx dja'dx* CHILD FEMALE, GIRL
sk'ä'dji EYEBROWS : *di sk'ädj u' i'dji*
 IT IS MY EYEBROWS

sda'nsarxx EIGHT : *sdz'nsr* FOUR
na' HOUSE ; *na'ga'i ya'a* IN THE HOUSE :
na i'e' 'sgwa'nsr ONE HOUSE
sgwa'nsr ONE ; *q'a'dji q'e'sgwa'nsr* ONE
 HEAD ; *k'un dji'sgwa'nsr* ONE NOSE ; *k'un*
k'xsgwa'nsr ONE LITTLE NOSE, POINT ; *gu'*
ya'sgwa'nsr ONE (FLAT) EAR : *gu' amsgwa'n-*
sr ONE BIG EAR ; *gu' k'x'sgwansr* ONE LITTLE
 EAR ; *gä'da'i gi'sgwa'nsr* ONE BLANKET, SHAWL
i — ; *q'a'dji* HEAD, HAIR OF HEAD : *q'a'dji*
yi — ; *la'o na'gai yi q'a't'car* HE IS GOING
 INTO A HOUSE : *na'i yi la q'a't'car* HE IS
 GOING INTO THE HOUSE

dji'dju' TO BE SPLIT UP, CUT UP : *stla'i*
djisgwa'nsr ONE BAND ; *stla'i djisd'r* TWO
 HANDS

i'dji' TO BE, *e'dj.η* TO BE (duratively) ;
ta' wdxr I CAUSE TO BE, PUT

u — *sk'a'dju'* TO BE SMALL AND ROUNDISH ;
gi'dju'gx (IT) IS LONG AND MASSIVE, SPREADY ;
tlwa'i u gämdju'gx THE CANOE IS LARGE :
xl k'u'dju NECK IS SHORT ; *dz'pdju* VERY
 SHORT ; *tlu gä'mdjus* A LARGE CANOE

di'sk'ädju' MY EYEBROWS ; *ta'o'la.gä-ya na'i*
go'dzgx I PUT HIS HOUSE ON FIRE ; *a'k'os*
u tl i'a'gx I AM EATING THIS ; *wx's: o go'xx-*
g'lgxr THAT IS STARTING TO BURN

DIPHTHONGS. — There are two diphthongs in Haida, *ai* and *au*. Each of these exists in two quantitatively distinct forms — short (*ai*, often contracted to *e'* ; *au*, *au*) and long (*a'i*, *a,i*, sometimes heard simply as *ai* ; *a'o*, *a'o*, *ao*). The latter type seems to result from contraction.

The uncontracted short *ai* is well illustrated by the enclitic articles *-ai* (probably < **hai*), when appended to a stem ending in a consonant, and *gai*, e. g. :

st'i'wai THE SEA-EGG

na'gai yi o INTO A HOUSE

According to Swanton¹, the Skidegate *ai* appears in Masset as *e'*, but Mr. Kelly, a Skidegate Haida, pronounced a number of *ai*-forms with *e'*-vowel, e. g. :

q'e'- classifier for large roundish things (cf. Swanton's *qlai-*, p. 232)

yä'ge' PARENT < *yä'gai* (cf. plur. *yä'gzlär*)

t'e'- classifier for bulky lying objects (cf. Swanton's *t'ai-*, p. 227)

q'e't SPRUCE (cf. Swanton's *qait* TREE, p. 271)

tle'tl' FIVE (probably contains *tla-* ; cf. *tlz*, *tl'*- TO TOUCH, *s-tla* HAND)

Possibly the Masset-like *e'*-forms are gaining currency among the younger people at the expense of the older *ai*-forms. The contracted *e'* is, of course, not to be confused with the *e'* which is merely a variant of *i'*.

The long *a'i* (*a,i*) probably always results from the contraction of *a* + *ai*, e. g. :

na'i THE HOUSE < *na-(h)ai*

st'a'i FOOT < *st'a-(h)ai* (cf. Swanton's instrumental *stla-* BY KICKING)

dla'i QUIETNESS < *dla-(h)ai*

Just as the primary *ai* may contract to *e'*, so it is likely that *a'i* may contract to *ai*. Thus, it seems probable that *gä'da.i* THE BLANKET is to be understood not as *gä't* + *ai* but rather as contracted from *gä'da-(h)ai* ; *q'o'yi* THE ROCK, as contracted from *q'o'ya* ROCK + *(h)ai*. Similarly, *xäi* ARM < *xä'i* < old **xä-(h)ai* ; **xä* itself passed to *xi* (Swanton's *xi*²) as **ga* passed to *gi*³.

The short *au*-diphthong is written *ao* by

1. *Op. cit.*, p. 213.

2. *Op. cit.*, p. 226.

3. See page 155.

Swanton. I heard it as an ordinary $a + u$ and did not feel that the labial element was lowered to o -position. Examples are :

'*a'uga* MOTHER (Swanton's *aoga*)

sq'au GROUSE (Swanton's *sqao*)

It seemed to me that it was rather the a that tended to become modified in the direction of u ; thus, I heard *gu* TO BE WANTING (in *tta''at η sgwa''ns η gu* NINE) and '*o'uga*, almost '*o'ga*, as variant of '*a'uga*. This tendency of *au* to contract to a monophthong is carried through, e.g., in *ga'yu* SEA (cf. Swanton's *gā'yo*, p. 272), *gu'* EAR (**gaw*, **gau*, and in *u*, *o*, *u*, *o* as reduced form of demonstrative *hau*).

The long *a'o*, also heard as *a'o'* and *ao'*, is markedly distinct from short *au*. It seems to result always from the contraction of $a + (b)au$, e.g. :

'*la'o'*, '*la'o* HE (emphatic form; < '*la-[h]au*)

ta'o', *tao'* I (emphatic form; < *ta-[h]au*)

IV. — STRESS AND PITCH.

I was not able to arrive at definite conclusions in regard to Haida stress and pitch and their interrelations. It is clear that a given word is regularly accented on a certain syllable. Generally this is the first, e.g. *i'h η x* MAN, *go'x η g η* (IT) IS FLAMING. '*yu'dju'* TO BE LARGE; but the accented syllable does not need to be the first, e.g. *ga'xa'* CHILD, *ha'w't* HURRY! Further, it is evident that the stressed syllable may lose its stress, as it reduces its quantity, in a given setting in the sentence or when the addition of one or more syllables changes the rhythmic pattern of its syllables. Thus, beside *go'x η g η* we have *go'x η g η ' η g η* (IT) IS BURNING, *go'x η g' η g η* (IT) IS STARTING TO BURN; beside *t'a'g η* TO EAT and *a'kos u* η *t'a'xidig η* I WAS ABOUT TO EAT THIS we have *ta ga t'a'gi'g η* I HAVE FINISHED EATING. These alternations of

stress may be purely rhythmic phenomena for the most part, but I doubt if they are entirely so. Functional alternations seem to be illustrated in *ga'yu* SEA : *ga'yu'* SMOKE; *q'a'dj η* HAIR OF HEAD : *q'a'dj η '* HAIRY. The same $-a'$ PROVIDED WITH is found in '*madja'* OCHRE and *ma'da'* HAVING MOUNTAIN-SHEEP, but we find also '*a'dja* SMEARED WITH SOAPBERRIES.

The question of stress is complicated by that of pitch. The stressed syllable is higher in pitch than the other syllables of the word. At the same time it seemed to me that a low-pitched syllable might very well bear a secondary stress so strong as to bring up the question whether, after all, what I have been making stress in this paper is not primarily a matter of relatively high pitch, only secondarily one of stress. Though I should not like to commit myself at present, I consider it very likely that pitch alternations are a primary factor in the dynamics of Haida, though it is perfectly clear that a given syllable is not uniformly high-pitched or low-pitched. The actual musical effect of Haida is so marked and the sonority of the more weakly stressed syllables so great that the operation of a pitch principle is to be looked for. Yet I cannot say that I succeeded in finding one beyond doubt.

A few sentences will have to do for the present to illustrate the alternations of pitch observed. A high pitch is indicated by an acute accent over the vowel (\acute{a}), a low one by a grave accent over the vowel (\grave{a}). A falling tone (\hat{a}) was observed only in '*má'* (exclamation of pain). If there are significant pitch alternations in Haida, they are probably of the simple Tlingit high-low type observed by Boas. In the following examples, the unmarked syllables following a high-pitched syllable did not impress the ear as being as definitely low-pitched as the one so marked. The pitch of unmarked syllables after a low-pitched syllable is low. A stressed syllable whose tone was not markedly high or low is

indicated by an acute accent after the vowel (a').

'la'gä'ya na'i ge 'la q'à't'caya'gan HE WENT
INTO HIS HOUSE

gä'gan na'i (y)u gò'gz' MY HOUSE IS ON
FIRE

'lá'o' gägzn na'i gò'dzgx' HE PUTS MY HOUSE
ON FIRE

tá'o' 'la'gä'ya na'i gò'dzgx' I PUT HIS HOUSE
ON FIRE

dá ta yò'da YOU START THE FIRE!

gò'xaxzngà IT IS BURNING

gò'xaxilgà IT IS STARTING TO BURN

'wasí' ò gò'xaxilgaxη THAT IS STARTING TO
BURN

nà'gái yá 'a IN THE HOUSE

táo' ná'i ya e'djη I AM IN A HOUSE

ná'gai yí' o ta qà't'caxη I GO INTO A HOUSE

'lá'o' na'gai yí' q'à't'caxη HE IS GOING INTO
A HOUSE

ná'i yí' 'la q'à't'caxη HE IS GOING INTO THE
HOUSE

tà ga t'à'gà I AM EATING

a'kos u tl' t'à'gà I AM EATING THIS

tl'gwí' u ta 'sdxη IT PUT IT AWAY

'wasga.i sdíη o t'si'wá'gà THOSE TWO ARE
CEDAR BOARDS

tl' wái u dj'ngxη THE CANOE IS LONG

x'l sq'à'sdíη TWO (LONG AND NARROW)
NECKS

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